

REMARKS

Claims 1-18 are all the claims pending in the application.

The Examiner has objected to the Abstract of the Disclosure as containing several minor informalities and to the title as not being sufficiently descriptive. Applicant has amended the Abstract of the Disclosure and title to address the Examiner's objections. Therefore, Applicant requests that the objections be withdrawn.

Applicant also requests that the Examiner provide to Applicant copies of the IDS 1449 forms that were supposed to be attached to the Office Action. The forms were not included with the Office Action.

PRIOR ART REJECTIONS

The Examiner has rejected claims 1-4, 7, 8, 10-13, 16 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Adoul et al. (U.S. Patent No. 5,754,976). Applicant traverses these rejections because Adoul et al. fails to disclose or suggest all of the claim limitations. Specifically, Adoul et al. fails to disclose or suggest at least the following limitations:

Claim 1:

said excitation quantization means holds *a plurality of sets of tables each of which stores pulse positions of said pulses*, calculates distortion between said speech signal and each of said *plurality of sets of tables* by the use of said impulse responses, selects one table and selects pulse positions in the selected table minimizing said distortion, and outputs judgment codes indicating the selected table, so that the same table is used to decode the pulses at a receiver side.

Claim 3:

said excitation quantization means holds *a plurality of sets of tables each of which stores pulse positions of said pulses*, calculates distortion between said speech signal and each of said *plurality of sets of tables* by the use of said

impulse responses, selects at least one table and selects pulse positions in the selected table minimizing said distortion, reads gain code vectors out of a gain codebook for each of said plurality of sets to quantize a gain, calculates distortion between said speech signal and the gain, selects a combination of said positions minimizing said distortion and said gain code vectors, and outputs judgment codes indicating the selected table.

Claim 7:

plural position-sets storing means for holding *a plurality of sets of tables each of which stores pulse positions of pulses*; and

excitation quantization means for calculating distortion between a speech signal and each of said *plurality of sets of tables*, so as to select one table and select pulse positions in the selected table minimizing said distortion.

Claim 8:

demultiplexer means supplied with a first code for spectral parameters, a second code for an adaptive codebook, a third code for an excitation signal, a fourth code representative of a selected one of *a plurality of sets of tables each of which stores pulse positions of pulses*, and a fifth code representative of a gain, for demultiplexing them into each code;

Claim 10:

fourth step of representing excitation signal of said speech signal by a combination of a plurality of pulses having nonzero amplitudes, quantizing said excitation signal and said gain by the use of said impulse responses, calculating distortion between said speech signal and each of *a plurality of sets of tables each of which stores pulse positions of said pulses* by the use of said impulse responses, selecting one table and selecting pulse positions in the selected table minimizing said distortion, and outputs judgment codes indicating the selected table, so that the same table is used to decode the pulses at a receiver side.

Claim 12:

fourth step of representing excitation signal of said speech signal by a combination of a plurality of pulses having nonzero amplitudes, quantizing said excitation signal and said gain by the use of said impulse responses, calculating distortion between said speech signal and each of *a plurality of sets of tables each of which stores pulse positions of said pulses* by the use of said impulse responses, selecting at least one table and selecting pulse positions in the selected table minimizing said distortion, reads gain code vectors out of a gain codebook

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or each of said plurality of sets to quantize a gain, calculating distortion between said speech signal and the gain, selecting a combination of said positions minimizing said distortion and said gain code vectors, and outputting judgment codes indicating the selected table.

Claim 16:

A speech coding method comprising steps of calculating distortion, between a speech signal and each of *a plurality of sets of tables each of which stores pulse positions of pulses*; and selecting one table and pulse positions in the selected table which minimize said distortion.

Claim 17:

first step of responding to a first code for spectral parameters, a second code for an adaptive codebook, a third code for an excitation signal, a fourth code representative of a selected one of *a plurality of sets of tables each of which stores pulse positions of pulses*, and a fifth code representative of a gain, to demultiplex them into each code;

On the other hand, in Adoul et al., each pulse is calculated with reference to a single table. This is apparent from col. 9, lines 24-29, which discloses that each of five non-zero amplitude pulses S_{p1} to S_{p5} is constrained to eight possible positions p_i .

Regarding claims 2, 4, 11 and 13, they should be allowable based on their dependence from the independent claims above for at least the same reasons.

The Examiner has rejected the remaining claims, 5, 6, 9, 14, 15 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Adoul et al. in view of Mermelstein (U.S. Patent No. 6,249,758). Applicant traverses these rejections because Adoul et al. fails to disclose or suggest all of the claim limitations. Specifically, Adoul et al. fails to disclose or suggest at least the following limitations:

Claim 5:

in the case where the output of said judging means is a predetermined mode, said excitation quantization means holds *a plurality of sets of tables each of which stores pulse positions of said pulses*, calculates distortion between said speech signal and each of said *plurality of sets of tables* by the use of said impulse responses, selects one table and selects pulse positions in the selected table minimizing said distortion, and outputs judgment codes indicating the selected table, so that the same table is used to decode the pulses at a receiver side.

Claim 9:

demultiplexer means supplied with a first code for spectral parameters, a second code for an adaptive codebook, a third code for an excitation signal, a fourth code representative of a selected one of *a plurality of sets of tables each of which stores pulse positions of pulses*, a fifth code representative of a gain, and a sixth code representative of a mode, for demultiplexing them into each code;

Claim 14:

fifth step of representing excitation signal of said speech signal by a combination of a plurality of pulses having nonzero amplitudes, quantizing said excitation signal and said gain by the use of said impulse responses, and furthermore, in the case where the output of said fourth step is a predetermined mode, calculating distortion between said speech signal and each of *a plurality of sets of tables each of which stores pulse positions of said pulses by the use of said impulse responses*, selecting one table and selecting pulse positions in the selected table minimizing said distortion, and outputting judgment codes indicating the selected table, so that the same table is used to decode the pulses at a receiver side.

Claim 18:

first step of responding to a first code for spectral parameters, a second code for an adaptive codebook, a third code for an excitation signal, a fourth code representative of a selected one of *a plurality of sets of tables each of which stores pulse positions of pulses*, a fifth code representative of a gain, and a sixth code representative of a mode, to demultiplex them into each code;

As mentioned above, in Adoul et al., each pulse is calculated with reference to a single table.

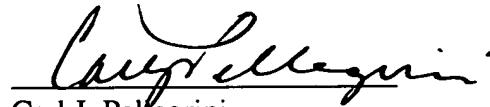
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Regarding claims 6 and 15, they should be allowable based on their dependence from the independent claims above for at least the same reasons.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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CUSTOMER NUMBER

Date: December 31, 2003